

REMARKS/ARGUMENTS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 48-76, 100-105 and 121-134 are presently pending in this application, Claims 106-110 and 116-120 having been withdrawn from further consideration by the Examiner, Claims 1-47, 77-99 and 111-115 having been canceled, and Claims 121-134 having been newly added by the present amendment.

In the outstanding Office Action, Claims 82 and 90 were objected to for informalities; Claims 1, 4-6, 8, 14-17, 19-21, 24 and 26-28 were rejected under 35 U.S.C. §102(a) as being anticipated by applicants' admitted prior art; Claims 2, 3 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art; Claims 9-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of JP 09-266146 (hereinafter "JP '146"); Claims 12, 29 and 33-36 were rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Kimura et al. (U.S. Patent 6,439,822); Claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of Kimura et al., and further in view of Bonora et al. (U.S. Patent 6,364,595); Claims 22 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over applicants' admitted prior art in view of JP 10-321518 (hereinafter "JP '518"); Claims 30-32 were rejected under 35 U.S.C. §103(a) as being unpatentable over admitted prior art in view of Kimura et al., and further in view of JP '146; Claims 37, 38, 41, 45, 77, 80-82, 84-86, 89, 90, 92-94, 96, 99 and 111-113 were rejected under 35 U.S.C. §103(a) as being unpatentable over Arakawa (U.S. Patent 6,356,338) in view of Kimura et al.; Claims 40 and 95 were rejected under 35 U.S.C. §103(a) as being unpatentable over Arakawa in view of Kimura et al., and further in view of JP 03-038021

(hereinafter "JP '021"); Claims 42-44 were rejected under 35 U.S.C. §103(a) as being unpatentable over Arakawa in view of Kimura et al., and further in view of JP 09-315521 (hereinafter "JP '521"); and Claims 87 and 88 were rejected under 35 U.S.C. §103(a) as being unpatentable over Arakawa in view of Kimura et al., and further in view of Bonora et al. However, Claims 48-76 and 100-105 were indicated as allowed and Claims 7, 25, 39, 46, 47, 78, 79, 83, 91, 97, 98, 114 and 115 were indicated as including allowable subject matter.

First, Applicants acknowledge with appreciation the indications that Claims 48-76 and 100-105 have been allowed and that Claims 7, 25, 39, 46, 47, 78, 79, 83, 91, 97, 98, 114 and 115 include allowable subject matter.

The specification has been amended solely for a formality.

With regard to the objection of Claims 82 and 90, Applicants respectfully request these claims be canceled without prejudice.

Newly added Claims 121-134 are believed to find support in the specification, claims and drawings as originally filed, and thus no new matter is believed to be added thereby.

Briefly recapitulating, Claim 123 according to the present invention is directed to an exposure apparatus including an exposure-apparatus main body that is arranged in a chamber, illuminates a mask on a mask stage with illumination beam irradiated from an illumination system provided on one end side of an upper portion in the chamber, and exposes a substrate with exposure beam corresponding to a pattern formed on the mask, a mask container delivery port on which a mask container capable of containing a plurality of masks can be provided, and a mask transport system that is arranged on the other end side of an upper portion in the chamber opposite to the one end side on which the illumination system is provided, and transports a mask in the mask container onto the mask stage.

Applicants respectfully submit that Applicants' Figs. 28-32 do not disclose anything about a positional relationship between an illumination system and a mask transport system inside a chamber where an exposure-apparatus main body is arranged. Thus, the structure recited in Claim 123 is clearly distinguishable from Figs. 28-32.

JP '518 discloses the illumination optical system 18. However, it is respectfully submitted that JP '518 does not teach "an exposure-apparatus main body that is arranged in a chamber, illuminates a mask on a mask stage with illumination beam irradiated from an illumination system provided on one end side of an upper portion in said chamber, and exposes a substrate with exposure beam corresponding to a pattern formed on said mask ... and a mask transport system that is arranged on the other end side of an upper portion in said chamber opposite to said one end side on which said illumination system is provided, and transports a mask in said mask container onto said mask stage" as recited in Claim 123, i.e., a structure which in a chamber where an exposure-apparatus main body is arranged, a mask transport system that transports a mask in a mask container to a mask stage is arranged at one end of an upper portion in the chamber opposite to another end at which an illumination system is provided. In particular, JP '518 only discloses that in order to facilitate an optical axis adjustment when connecting an exposure-apparatus main body and a laser unit, the exposure-apparatus main body and the laser unit are respectively provided at predetermined positions, and three-dimensional coordinates of at least two points known in the position related to the reference points of respective units on the optical axis are measured, and then after connecting the exposure-apparatus main body and the laser unit with BMU, the inclination and shifted amount of the optical axis of each unit are calculated. Nowhere does JP '518 disclose a positional relationship between the illumination system and the mask transport system.

JP '521 discloses a conveying system to a stocker housing wafer cassettes, where two or more load delivering parts are provided along a transport route (ceiling transport route), since only one rack part for a cassette (carrier) is available in this system and for the reason that transport is inefficient. Nevertheless, JP '521 does not disclose a chamber where an exposure-apparatus main body is arranged, and a positional relationship between an illumination system and a mask transport system inside the chamber.

JP '146 only discloses a constitution in which as a function to shorten a time interval between lots, an approximate position of a wafer in the next lot can be set to any position designated by a user so that a waiting position of a substrate in the next lot can be determined even when the exposure parameters for the next lot are not prepared. JP '021 only discloses an alignment of a disk-like mask by rotation, where a mask position correction by hand can be omitted by providing a mask holding means capable of correcting a rotational direction of the mask, and thereby preventing the cleanliness from being lowered. Kimura et al. only discloses that the time lag between an outer transport and an inner transport is reduced mainly by separating a section where a substrate carrier is carried to/from the outside from a position where a substrate is carried into/from the carrier. Kimura et al. do not disclose a relationship between an illumination system and a mask transport system inside the chamber where an exposure-apparatus main body is arranged. Arakawa mainly discloses a space that can be sealed up from the outside is formed in a delivery route between an exposure apparatus and a coater-developer so as to suppress entry of gaseous chemical substances from a coater chamber into an exposure chamber. Arakawa discloses the illumination optical system 5 and reticle transport system 21 in Fig. 1, but the reticle transport system 21 in Arakawa does not transport a mask in a mask container onto a mask stage. Bonora et al. only disclose a sealed-type mask container, and do not disclose a positional relationship between an illumination

system and a mask transport system inside a chamber where an exposure-apparatus main body is arranged. As such, it is believed that all of these references fail to teach "an exposure-apparatus main body that is arranged in a chamber, illuminates a mask on a mask stage with illumination beam irradiated from an illumination system provided on one end side of an upper portion in said chamber, and exposes a substrate with exposure beam corresponding to a pattern formed on said mask ... and a mask transport system that is arranged on the other end side of an upper portion in said chamber opposite to said one end side on which said illumination system is provided, and transports a mask in said mask container onto said mask stage" as recited in Claim 123, i.e., a structure which in a chamber where an exposure-apparatus main body is arranged, a mask transport system that transports a mask in a mask container to a mask stage is arranged at one end of an upper portion in the chamber opposite to another end at which an illumination system is provided.

Hence, the subject matter recited in Claim 123 is believed to be clearly distinguishable from Applicants' Figs. 28-32, JP '518, JP '146, JP '021, Kimura et al., Arakawa and Bonora et al., and thus even the combined teachings of these cited references are not believed to render the lithography system recited in Claim 123 obvious.

Turning to Claims 128-134, Claim 128 is directed to a lithography system including a sealed-type substrate container that comprises a lid and is capable of containing a plurality of substrates, an exposure-apparatus main body that comprises a container port on which the substrate container is provided, takes a substrate out of the substrate container and performs exposure processing on the substrate, and an orientation-change unit that changes an orientation of the substrate container to an orientation suitable for the exposure-apparatus main body before the exposure-apparatus main body takes the substrate out of the substrate container.

Applicants' Figs. 28-32 do not disclose anything about an orientation-change unit that changes an orientation of a substrate container. Thus, the subject matter recited in Claim 128 is clearly distinguishable from Figs. 28-32.

Likewise, the cited references, JP '518, JP '146, JP '021, Kimura et al., Arakawa and Bonora et al., are not believed to teach "an orientation-change unit that changes an orientation of the substrate container to an orientation suitable for the exposure-apparatus main body before the exposure-apparatus main body takes the substrate out of the substrate container" as recited in Claim 128, i.e., an orientation-change unit that changes an orientation of a sealed-type substrate container capable of containing a plurality of substrates to an orientation suitable for an exposure-apparatus main body.

As discussed above, JP '518 merely discloses that in order to facilitate an optical axis adjustment when connecting an exposure-apparatus main body and a laser unit, the exposure-apparatus main body and the laser unit are respectively provided at predetermined positions, and three dimensional coordinates of at least two points known in the position related to the reference points of respective units on the optical axis are measured, and then after connecting the exposure-apparatus main body and the laser unit with BMU, the inclination and shifted amount of the optical axis of each unit are calculated. JP '521 discloses a conveying system to a stocker housing wafer cassettes, where two or more load delivering parts are provided along a transport route (ceiling transport route), since only one rack part for a cassette (carrier) is available in this system and for the reason that transport is inefficient. JP '146 only discloses a constitution in which as a function to shorten a time interval between lots, an approximate position of a wafer in the next lot can be set to any position designated by a user so that a waiting position of a substrate in the next lot can be determined even when the exposure parameters for the next lot are not prepared. JP '021

only discloses an alignment of a disk-like mask by rotation, where a mask position correction by hand can be omitted by providing a mask holding means capable of correcting a rotational direction of the mask, and thereby preventing the cleanliness from being lowered. Kimura et al. only disclose that the time lag between an outer transport and an inner transport is reduced mainly by separating a section where a substrate carrier is carried to/from the outside from a position where a substrate is carried into/from the carrier. Arakawa mainly discloses a space that can be sealed up from the outside is formed in a delivery route between an exposure apparatus and a coater-developer so as to suppress entry of gaseous chemical substances from a coater chamber into an exposure chamber. Arakawa discloses an illumination optical system 5 and a reticle transport system 21 in Fig. 1, however, the reticle transport system 21 in Arakawa does not transport a mask in a mask container onto a mask stage, and Arakawa does not describe an orientation-change unit that changes an orientation of a substrate container. Bonora et al. only discloses a sealed-type mask container, and do not describe an orientation-change unit that changes an orientation of a substrate container.

Therefore, the subject matter recited in Claim 128 is believed to be clearly distinguishable from Applicants' Figs. 28-32, JP '518, JP '146, JP '021, Kimura et al., Arakawa and Bonora et al., and thus even the combined teachings of these cited references are not believed to render the lithography system recited in Claim 128 obvious.

Likewise, Claim 134 is believed to include subject matter substantially similar to what is recited in Claim 128 to the extent discussed above. Thus, Claim 134 is also believed to be distinguishable from Applicants' Figs. 28-32, JP '518, JP '146, JP '021, Kimura et al., Arakawa and Bonora et al.

Finally, Claim 121 is directed to a lithography system including an exposure-apparatus main body that is arranged in a chamber that can be provided on a floor surface,

and exposes a substrate with exposure beam corresponding to a pattern of a mask, a beam generating unit that is arranged on the floor surface a predetermined distance apart from the chamber of the exposure-apparatus main body and generates the exposure beam, and an optical connection unit that optically connects the exposure-apparatus main body and the beam generating unit, wherein both the exposures-apparatus main body and the beam generating unit are constituted so that maintenance can be performed from an area formed in between the chamber of the exposure-apparatus main body and the beam generating unit, and the optical connection unit is excluded from the area formed in between the chamber of the exposure-apparatus main body and the beam generating unit by arranging the optical connection unit below the floor surface where the exposure-apparatus main body and the beam generating unit are provided. Claim 122 is directed to an exposure apparatus that is arranged in a chamber that can be provided on a floor surface, and exposes a substrate with exposure beam corresponding to a pattern of a mask, and the exposure apparatus includes an exposure-apparatus main body to which the exposure beam is supplied via an optical connection unit arranged below the floor surface from a beam generating unit that is arranged a predetermined distance apart from the chamber on the floor surface and generates the exposure beam, wherein the exposure-apparatus main body is constituted so that maintenance can be performed from an area formed in between the chamber and beam generating unit.

Because none of the cited references discloses the optical connection unit arranged below a floor surface as recited in Claims 121 and 122, the structures recited in Claims 121 and 122 are believed to be distinguishable from these references, and even their combined teachings are not believed to render the structures recited in Claims 121 and 122 obvious.

For the foregoing reasons, Claims 121, 122, 123, 128 and 134 are believed to be allowable. Furthermore, since Claims 124-127 and 129-133 ultimately depend from one of

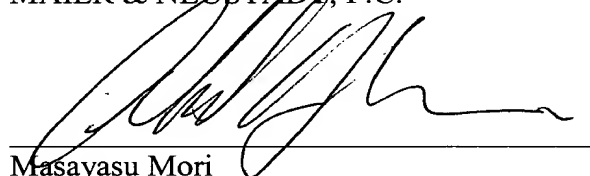
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either Claim 123 or 128, substantially the same arguments set forth above also apply to these dependent claims. Hence, Claims 124-127 and 129-133 are believed to be allowable as well.

In light of the prior indication of allowable subject matters and in view of the amendments and discussions presented above, Applicants respectfully submit that the present application is in condition for allowance, and an early action favorable to that effect is earnestly solicited.

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